RESEARCH NOTES

Factors Associated with Use of the Female Condom

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Black, Hispanic and white women recruited for an HIV prevention intervention were instructed in the use of the female condom and encouraged to try the device. Of the 231 women who completed the intervention, 29% tried the condom over the course of a month; 30% of those who tried it used it during at least half of their sexual encounters. Both ethnicity and age were associated with trying the device: Nearly 40% of black women and 30% of Hispanic women did so, compared with 18% of white women; 37% of those aged 25–34 tried the female condom, compared with 22% of women younger than 25. Trying the device was more likely among women living with a partner, those with a history of sexually transmitted disease infection, women who had had an HIV test, those who did not believe that the method afforded them a greater degree of overall control than did the male condom and those who had no prior knowledge of the device. Among women who used the device during at least half of their sexual encounters, 27% were black and 44% were Hispanic; 38% were younger than 25, and 43% were single. More regular users were about half as likely as less regular users to experience difficulty with insertion and one-eighth as likely to report the device slipping during use; they were more likely than less regular users to report that sex was more pleasurable with the female condom than with the male condom.

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There is a clear rationale behind the need for the female condom,[1] and early studies of the acceptability of the device have been encouraging. Nonetheless, the existing research has several limitations: One study, for example, was based not on a sample of women who actually used the device, but on focus-group discussions with women who were shown the condom and encouraged to handle it.[2] Two other investigations were based on samples of women who had to agree to try the device as a criterion for study inclusion.[3]

While these latter two studies provide a better index of acceptability than does the former, they are constrained by the bias of selecting only those women willing to try the device. Selectivity, small sample size and data collection restrictions in previous research have inhibited attempts to differentiate among women unwilling to try the device, those willing to do so and those using the female condom with some regularity.

In this research note, we compare women who tried the device with those who did not, and we compare the use characteristics and reactions to the device among women who used the female condom during at least half of their sexual encounters with the use characteristics and reactions of women who were less regular users of the method.

Methods

Study participants were recruited as part of a project to test a behavioral intervention for culturally diverse women at risk for HIV infection. Women were informed that they were being recruited as part of an investigation of women's health issues and that HIV and AIDS prevention would be a central concern. In this context, we presented the female condom to women, demonstrated its use and offered free supplies over a one-month period. Thus, women who entered the study did not know that they would be encouraged to use the female condom or that they would be offered contraceptive supplies.

From September 1994 through February 1995, women were recruited from 21 sites in Miami, Florida, including public health, sexually transmitted disease (STD) and family planning clinics and state economic service centers.* Women were eligible to enroll in the study if they were 18–45 years of age, identified themselves as black, Hispanic or white, were not pregnant at the time of recruitment, believed themselves to be HIV negative, and reported that they engaged in HIV risk behaviors (injecting drug use, having multiple sexual partners, exchanging sex for money or drugs, having sex with bisexual men or men who use injecting drugs, and using alcohol or drugs prior to sex).

Women were interviewed by female interviewers of the same race or ethnicity; interviews were conducted in either English or Spanish. All women signed informed consent, and each was assured that the information provided was protected by a certificate of confidentiality. Baseline interviews gathered information on women's demographic characteristics and their history of STD infection and HIV testing. We asked women whether they had heard of the female condom, and if they believed they would have more control with a condom that they themselves inserted than with a male condom.

After the initial interview, women were

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* State economic service centers are multiservice centers for low-income individuals that include public assistance and food stamp offices, as well as public health clinics.

Table 1. Percentage distribution of women aged 18–45 who completed an HIV prevention intervention, by characteristics at baseline, Miami, Florida, 1994–1995 (N=231)

Characteristic	%	N
Total	**100**	**231**
Ethnicity		
Black	28.7	66
Hispanic	38.7	89
White	32.6	75
Age		
18–24	32.3	74
25–34	41.0	94
35–45	26.7	61
Marital status		
Single	45.6	104
Married	37.3	85
Other	17.1	39
Live with partner		
Yes	54.6	124
No	45.4	103
Education		
<high school	30.6	70
High school graduate	30.1	69
>high school	39.3	90
Have had an STD		
Yes	28.6	65
No	71.4	162
Have had an HIV test		
Yes	19.1	44
No	80.9	186
Had heard of device		
Yes	79.2	183
No	20.8	48
More control with female condom		
Yes	49.3	114
No	50.7	117

Note: Ns may vary by characteristic because of missing data.

randomly assigned to either an experimental (intervention) or a control group; those in the experimental group attended a series of six weekly intervention sessions. Five to 10 women attended each group; sessions were conducted in either English or Spanish by a female leader of the same race or ethnicity as the participants. Women received incentives to participate in the project, but these were not related to use of the female condom.

At the third intervention session, women were introduced to the female condom and instructed about its correct use. An English-language instruction and information sheet, as well as a comparable Spanish-language version, was made available to participants. Women were also informed about the correct use of the male condom, discussions were held comparing the advantages and disadvantages of each device, and time was alloted for questions. At the session's end, the women were given six female and six male condoms and told that they could have more of either throughout the intervention.

The first three intervention sessions emphasized the need to use any type of condom (male or female), but participants were encouraged to at least try the female condom in the week following the third session. Intervention sessions four through six focused on behavioral skills training. The week after the final intervention session (approximately one month after introduction of the female condom), participants completed a posttest interview.

At posttest, women were asked whether they had tried the female condom, and if so, with what frequency they had used it (more than half of the times they had sex or fewer than half of the times). We asked women to recall their general reaction to the device at first use and their general reaction at posttest. Both items were measured with a five-point Likert response scheme.

Women who had used the female condom were shown sets of terms describing contrasting impressions of the device and were asked to rate their reaction to each on a five-point scale, wherein a high value indicated a positive and a low value a negative reaction. Terms used were "neat vs. messy," "comfortable vs. uncomfortable," "nonirritating vs. irritating," "pleasant vs. unpleasant," "tight vs. loose," "enhanced mood vs. killed mood," "stimulating vs. not stimulating" and "thick vs. thin."

Each user was asked if she felt more in control with the female than with the male condom overall, and, specifically, whether she felt more control in protecting herself against STDs. Users were also asked to contrast the female condom with the male condom in terms of overall pleasure for themselves as well as for their partner.

Results

We recruited and obtained baseline interviews from 542 women; 231 women were assigned to the experimental group, attended at least four of six intervention sessions and completed a posttest interview. These women make up the study sample.

About 29% of the women were black, 39% were Hispanic and 33% were white (Table 1). Nearly one-third were aged 18–24, and slightly more than one-quarter were 35–45; 46% had never married, and 17% were divorced, widowed or separated. Nearly 55% of the women were living with a partner. Thirty-one percent of the participants had less than a high school education, 30% were high school graduates and almost 40% had some postsecondary education or training.

Almost 29% of the women had had an STD, and 19% had been tested for HIV. Although none of the women had ever used a female condom at baseline, nearly 80% had heard of the device. Women were as likely to report that they would feel more in control in sexual situations with a female condom than a male condom as to report the reverse.

Twenty-nine percent of participants (N=66) tried the female condom in the month subsequent to its introduction in the intervention (Table 2). Ethnicity was significantly associated with use of the device ($p<.01$): Thirty-nine percent of black women, 30% of Hispanic women and 18% of white women tried it. Age was also associated with a willingness to try the female condom ($p<.05$): Thirty-seven percent of women aged 25–34 tried the device, while 26% of women aged 35–45 and 22% of those aged 18–24 did so. Marital status was not associated with ever-use of the female condom, but women living with a partner were more likely than those not doing so to have tried it (33% vs. 25%, $p<.05$). There was no association between education and trying the device.

Women who had had an STD and those who had been tested for HIV were more likely to have tried the female condom than were women without such a history. Participants who had not heard of the device prior to pretest were more likely to have tried it than were women who were familiar with it beforehand (42% vs. 26%, $p<.05$). Women who felt the device offered no more control than did the male condom were more likely to use the female condom than were those who felt it provided more control (33% vs. 25%, $p<.05$).

Among women who tried the device, 30% (N=20) used it during at least half of their sexual encounters (Table 2). Ethnicity was significantly associated with regularity of use ($p<.01$): Some 44% of Hispanic women reported using the female condom at least half the times they had sex, compared with 27% of black women and 7% of whites. Younger age was associated with more rather than less regular use ($p<.05$).

Marital status was also significantly associated with use consistency ($p<.01$), as 43% of single women reported using the device during at least half of their sexual encounters, compared with 8–26% of women who were either married, separated, divorced or widowed. Women not living with a partner were more likely to use the female condom during at least half of their sexual encounters than were those living with a partner ($p<.05$). Lower educational attainment was associated with more regular

rather than less regular use (p<.01).

Use consistency was also associated with having had an STD as well as having had an HIV test (p<.01 for both). Having heard of the device prior to pretest was not significantly related to use consistency, but the feeling of more control with a female condom than a male condom was associated with less regular use of the female condom (p<.01).

We examine reactions to the device separately for all women who tried it and for those who used it less than half and more than half the times they had sex. Our measure is a crude indicator of the regularity of use and does not take into account the number of times the condom was used. Therefore, a woman who had sex many times during the month may have used the condom during more encounters than did a woman who had sex fewer times, yet the latter may have used the device for a higher proportion of encounters, and thus appear to be a more regular user. Thus, the measure taps commitment to using the device when having sex, but does not indicate the actual frequency of use.

Table 2. Percentage of women who used the female condom at least once, and percentage of ever-users who used it regularly, by selected characteristics

Characteristic	Any use (N=66)	Regular use† (N=20)
Total	**29.0**	**29.9**
Ethnicity		
Black	39.4**	26.9**
Hispanic	30.3	44.4
White	18.2	7.1
Age		
18–24	21.6*	37.5*
25–34	37.2	28.6
35–45	26.2	25.0
Marital status		
Single	28.8	43.3**
Married	27.1	26.1
Other	33.3	7.7
Live with partner		
Yes	33.1*	24.4*
No	25.2	38.5
Education		
<high school	28.6	45.0**
High school graduate	27.5	31.6
>high school	31.1	17.9
Have had an STD		
Yes	43.1**	38.9**
No	24.1	27.1
Have had an HIV test		
Yes	40.9*	61.1**
No	26.3	18.4
Had heard of device		
Yes	25.7*	27.7
No	41.7	35.0
More control with female condom		
Yes	24.6*	21.4**
No	33.3	35.9

*p<.05. **p<.01. †Used during at least half of all acts of intercourse.

As Table 3 indicates, 47% of all users had a positive reaction at the time of first use (liked it very much or somewhat), but nearly as many said they disliked the female condom very much as said they liked it very much (15% vs. 17%).

As expected, a woman's initial reaction was associated with her using the method during at least half of the times she had sex; women who used the device this often were nearly four times as likely to say that they initially liked the condom very much as were women who used it less regularly. No woman who used the device during at least half of her sexual encounters reported disliking the condom very much at initial use, while nearly 22% of those who used it less regularly gave this response.

Women who had used the method during fewer than half of their sexual encounters differed little in their initial and posttest reactions to the condom; the distribution of responses was similar. However, among women who used the female condom more than half of the times they had sex, the distribution of responses shifted: Whereas 55% of these women recalled either liking the device very much or somewhat at initial use, 75% felt this way at posttest.

Table 3 also shows data on characteristics of and problems associated with use of the method. Some 94% of all women who used the female condom reported that the instructions were easy to follow. No woman reported that the female condom broke or tore during insertion or removal or during intercourse. Difficulty removing the device was rare, but 24% of all women had difficulty inserting it. Those who used the device fewer than half of the times they had sex were more likely to have insertion problems than were women who used it more regularly (28% vs. 15%). Likewise, those who used it less regularly were more likely to report that the device slipped out than were women who used it during more than half of their encounters (38% vs. 5%). Some 90% of all users liked the lubricant.

About 75% of all women inserted the device themselves. Most women reported inserting the condom just prior to foreplay, although women who used the device more than half of the times they had sex were more likely to do so (65%) than were women who used the condom less regularly (43%). Women who used the condom less regularly were twice as likely to insert it just prior to intercourse as were those who used it at least half of the time.

Table 3. Percentage distribution of women, by their reactions to, use of and difficulties with the female condom, according to use-status

Measure	Any use (N=66)	Less regular use (N=46)	More regular use (N=20)
Initial reaction			
Liked very much	16.7	8.7	35.0
Liked somewhat	30.3	34.8	20.0
No opinion	18.2	15.2	25.0
Disliked somewhat	19.7	19.6	20.0
Disliked very much	15.1	21.7	0.0
Posttest reaction			
Liked very much	21.5	11.1	45.0
Liked somewhat	35.4	37.8	30.0
No opinion	9.3	6.7	15.0
Disliked somewhat	16.9	20.0	10.0
Disliked very much	16.9	24.4	0.0
Instructions easy			
Yes	93.9	95.6	90.0
No	6.1	4.4	10.0
Condom broke or tore			
Yes	0.0	0.0	0.0
No	100.0	100.0	100.0
Had difficulty removing			
Yes	1.5	2.5	0.0
No	98.5	97.5	100.0
Had difficulty inserting			
Yes	23.9	27.7	15.0
No	76.1	72.3	85.0
Condom slipped			
Yes	28.4	38.3	5.0
No	71.6	61.7	95.0
Liked lubricant			
Yes	89.6	86.9	100.0
No	10.4	13.1	0.0
Who inserted condom			
Woman	74.6	72.3	80.0
Partner	6.0	6.4	5.0
Both	19.4	21.3	15.0
When condom was inserted			
Hours before sex	3.0	2.1	5.0
Just prior to foreplay	49.2	42.6	65.0
As part of foreplay	22.4	25.5	15.0
Immediately prior to intercourse	25.4	29.8	15.0
Total	100.0	100.0	100.0

Table 4 (page 184) shows the mean score for each set of terms describing user reactions to the female condom. Means are presented for all women who used the device and for those who used the condom during at least half and during fewer than half of the times they had sex. In general, ratings on each set of terms are relatively high—all means are above the midpoint of the scale. However, there is variation among sets. For example, average ratings for "neat vs. messy" and "comfortable vs. uncomfortable" among all women are about 4.1, whereas on "stimulating vs. nonstimulating" and "thin vs. thick," the average rating drops to about 3.1.

The reactions of women who used the de-

Table 4. Mean value of measures of women's reactions to selected characteristics of the female condom, by use-status, and difference in mean value between less regular and more regular users

Reaction	Any use	Less regular use	More regular use	Difference
Neat/messy	4.06	3.93	4.55	0.62*
Comfortable/uncomfortable	3.98	3.69	4.60	0.91***
Nonirritating/irritating	3.75	3.37	4.15	0.78*
Pleasant/unpleasant	3.36	2.98	4.25	1.27***
Tight/loose	3.27	3.15	3.55	0.40
Enhanced mood/killed mood	3.26	2.78	4.35	1.57***
Stimulating/not stimulating	3.12	2.95	4.15	1.20***
Thin/thick	3.09	2.74	3.30	0.56

*p<.05. ***p<.001

vice during fewer than half of their sexual encounters were significantly less positive than were those of women who used the device more regularly. Women in these two groups did not differ in their perception of the device as "tight vs. loose" or "thin vs. thick," and only slightly on "neat vs. messy" (mean difference of 0.6, p<.05). Women who used the device more regularly had significantly more positive reactions than did less regular users in regard to perceiving the device as "stimulating vs. not stimulating" (mean difference of 1.2), "pleasant vs. unpleasant" (1.3) and "enhanced mood vs. killed mood" (1.6, all p<.001).

Overall, nearly 85% of users felt more in control of disease protection for themselves when using the female condom than when using the male condom (not shown). While women who used the device more than half of the times they had sex were especially likely to report this feeling of control—95% did so—80% of those who used the device less regularly did so as well.

Overall, women were just as likely to report that sex feels more pleasurable with a female condom than with a male condom as to say that it is more pleasurable with a male condom. However, women who used the device more than half of the times they had sex were more likely than less regular users to feel this way (70% vs. 40%, not shown). Forty percent of women who tried the device felt that sex was more pleasurable for their partner with the female condom than with the male condom; women who used the condom more regularly were more likely than less regular users to perceive it as pleasurable for their partner (55% vs. 33%, not shown).

Discussion

In previous studies of the acceptability and use of the female condom, women who did not agree to use the method were excluded from the data analysis. Thus, past reports of the extent to which the device was tried and used may be biased. Participants in our study, however, were not selected based on their willingness to try the device. Instead, women participating in the HIV prevention intervention were not informed ahead of time that they would be instructed in the use and advantages of the female condom or that they would be provided with free supplies. When they were encouraged to try the device, 29% chose to do so.

Our data suggest that the female condom has the potential to be an important element in the campaign to prevent infection with STDs and HIV. Black and Hispanic women, among whom HIV infection rates are rising most dramatically, are the most willing to try the device; nearly 45% of Hispanic women who tried the female condom used the device during at least half of their sexual encounters in the following month. Similarly, among women who tried the device, the largest proportion of regular users were young, were single and had less than a high school education—all characteristics of women at higher risk of STD infection.

Our data suggest that women's satisfaction with the device increases as they use it more regularly. However, more and better data on consistency of use and factors affecting use are needed; in particular, we need to develop a clearer understanding of factors that influence a woman's willingness to try the device, and we must identify factors associated with increased consistency of use.

Comparing those women who used the device in at least half of their sexual encounters with those who used it less regularly, we found that more regular users were considerably more likely to take advantage of the device's timing flexibility by inserting it prior to foreplay, while less regular users tended to treat the device like a male condom, inserting it as part of foreplay or just prior to sex. Furthermore, although both groups of women were about equally likely to report that the instructions were easy to follow, less regular users were nearly twice as likely as regular users to report trouble inserting the device, and they were nearly eight times as likely to report that the device slipped or came out. It would be useful to know if these problems were the result of improper use or if they were due to anatomical factors, similar to those documented with use of the diaphragm.[4]

Interestingly, women who responded negatively to the item regarding increased feelings of control with a condom they themselves inserted were more likely both to try the device and to use it with some regularity than were women who responded otherwise. Past research may have overemphasized the importance of control as a factor in use of the method; once women see the device demonstrated, they may come to view it as not markedly different from the male condom, in that both require negotiation and cooperation.

The enhanced control emphasized in the device's promotion may be less of an advantage to women than expected: We found that 55% of less regular users elected to insert the device during foreplay, thereby giving up the potential benefit of placing their partner in the position of having to negotiate out of using it. Moreover, nearly 40% of these users reported slippage, which could reflect either difficulties in partner cooperation or problems with the condom's instructions.

Finally, when comparing more regular with less regular users regarding their attitudes about and reactions to the device, regular users had more positive reactions on all but two characteristics ("tight vs. loose" and "thick vs. thin"); the differences were large on three ("pleasant vs. unpleasant," "enhanced mood vs. killed mood" and "stimulating vs. not stimulating"). These three items are more explicit in their sexual references than are the others, and they parallel men's reactions to the male condom.

This suggests that obstacles to use of the female condom may resemble those posed by the male condom: For many users, these methods may interfere with or detract from the sexual experience to an unacceptable degree. Ultimately, it may be that efforts to increase use of the female condom among women will have to focus on the same issues that have traditionally been obstacles to the use of the male condom among men.

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